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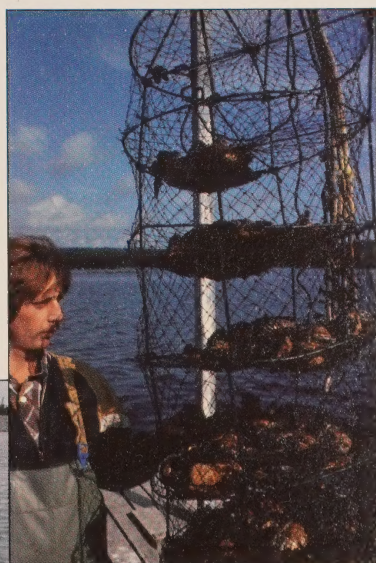
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# The Nova Scotia Fishery: Building on Diversity



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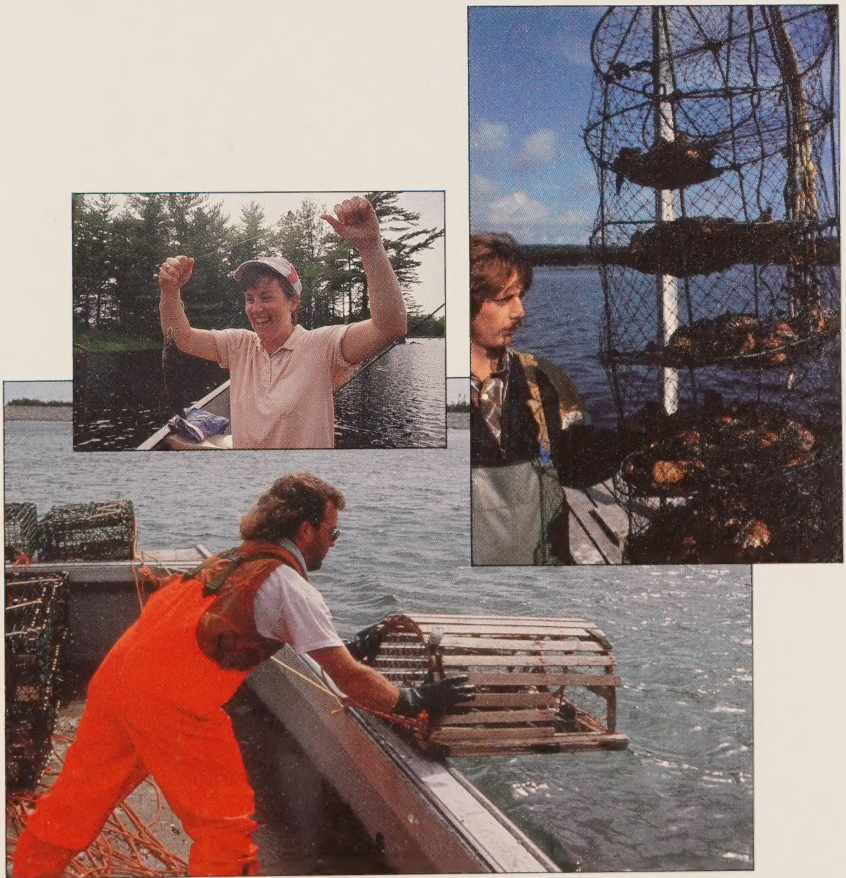
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## The Nova Scotia Fishery: Building on Diversity





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# **The Nova Scotia Fishery: Building on Diversity**

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under the Canada/Nova Scotia Cooperation Agreement  
on Fisheries Development.

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## The Commercial Fishery: What does it offer?

The Nova Scotia fishery rests on a solid foundation. Although not without problems, it is an industry with opportunity and, if managed in a sustainable way, its future prospects remain bright. Its strength is derived from the great diversity of fish species found in Nova Scotian waters. This area is enriched by some of the world's most productive waters.

A large percentage of fish landed in Nova Scotia is exported. In recent years, this has exceeded \$700 million in value annually. The sale of the fish abroad is an important source of income for coastal communities and contributes to the gross provincial product.

A prominent feature of today's fishery is the development of new fisheries, new techniques which are oriented to the conservation of stocks, new products and new international markets.

Lobster, scallop, snow crab, herring and groundfish (cod, haddock, pollock, redfish, flounder and other bottom-feeding finfish) are the bedrock species on which the fishery rests. Secondary species such as bluefin tuna, clams, shrimp, eels, alewives, mackerel and swordfish add diversity and income for fishermen and others.

### **Promising new fisheries**

Meanwhile, new fisheries have been created in recent years for species that were not being fished, either because of poor markets or because of the difficulty of catching them. These are species like deep-sea clam, shrimp and crab. More recently fisheries for other species such as silver hake, dogfish, sea urchin and others have been coming on-stream. Previously unexploited species of crab, tuna, and shark that are not heavily fished at the moment, but which are present in commercial quantities, may be harvested on a larger scale in the future.

### **Aquaculture**

A half dozen or so species are also being cultured including mussels, oysters, scallops, salmon, trout and marine plants. The

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cultivation of other species is in the experimental stage. Aquaculture provides a major opportunity for future growth around Nova Scotia's long coastline with its many inlets. It offers a way to supplement harvest and income from the wild fishery.

## **Fishing for pleasure**

Nova Scotia also has a significant inland recreational fishery for trout and some Atlantic salmon supplemented by government hatcheries. Angling for smallmouthed bass is growing in popularity. Sport fishing for tuna and shark attract avid fishermen from far and wide. Several annual sea derbies take place in this province. There is considerable potential to increase revenues from recreational freshwater and marine fisheries.

### **Facts about the Nova Scotia Fishing Industry**

**Fishermen: 16,489 total. 8,110 full time and 8,379 part time. (DFO 1992 figures)**

**Plant Workers: 6,300 (NS Provincial 1992 figures)**

**(This figure represents the average monthly number of plant workers in 1992).**

**Registered Fish Plants: 351**

**Number of Boats: 6,255 (5,914 under 45 feet) .**

***Values and Landings (1992 preliminary/ 1982 in brackets)***

**Landings: 493,095 tonnes (469,475 tonnes)**

**Landed Value: \$508,770,000 (\$259,411,000)**

**1992 Production for aquaculture: 1,303 tonnes**

**1992 Landed Value for aquaculture: \$7,000,000 million**

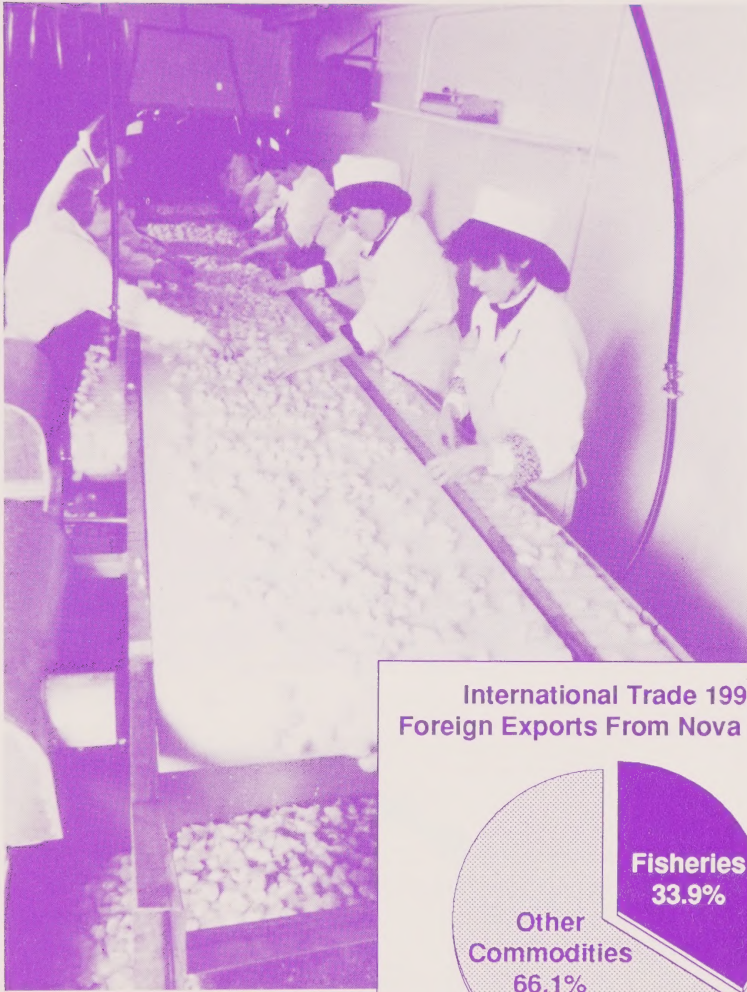
**Total Market Value**

**(excluding aquaculture): \$987,244,000**

Physically, Nova Scotia is blessed with productive offshore banks and a long coastal shelf. This is particularly true of southwestern Nova Scotia where the extreme tides of the Bay of Fundy wash around the curve of the peninsula and throughout the entire Gulf of Maine, dislodging and dispersing nutrients for marine life.

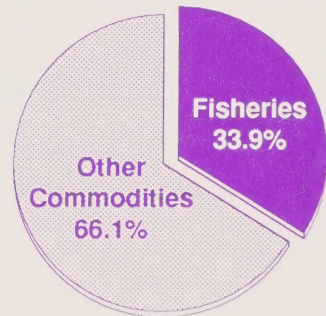
The fishery in Nova Scotia continues year-round, except for that part of the coast which faces the Gulf of St. Lawrence. The fishery is supported by a well developed infrastructure,





***Plant workers prepare scallops for market.***

**International Trade 1990  
Foreign Exports From Nova Scotia**



*Source: Statistics Canada Lading Tabulations.*

including approximately 350 fish plants, and some 300 small craft harbours. These harbours include 21 high-volume ports in the "A" category, which means they have more than 800 metres of berthing space. The fleet is equipped with advanced technology. There are 5,914 vessels under 45 feet, 210 between 45 and 65 feet, and 131 over 65 feet. There is a workforce of some 8,000 skilled fish plant workers which can be drawn from to work in processing plants as required.



***The fishing banks off Nova Scotia are some of the most productive waters in the world.***

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## Sustainability and conservation

Although uncertainty has been a fact of life in fishing, the Nova Scotia fishing industry is coming to grips with the natural forces that influence the industry so greatly. Sustainability and conservation are now key concepts in virtually all fisheries.

One of the means to achieving a sustainable fishery is through a management system which involves government, fishermen and the fishing industry working together in the decision-making process. Currently there are some 35 advisory committees in Nova Scotia covering most commercial and recreational species, fleets and areas.

The long-term goal of all partners in the fishery is to place the fishing industry on a solid foundation so it can be better prepared for the natural fluctuations in the fish population.

In addition, a growing number of entrepreneurs are taking advantage of opportunities to try experimental fisheries and develop new products and markets. They are also developing and adapting new conservation techniques for fishing and fish farming, and for holding, transporting and processing fish.

The Nova Scotia fishery still has room for enhancement, especially in technology and marketing.

In recognition of this potential, the governments of Canada and Nova Scotia, through the **Canada/Nova Scotia COOPERATION Agreement**, encourage and have made funding available for new ideas and projects that will conserve and enhance the value of the fishery. Other programs and agencies, such as the Atlantic Fisheries Adjustment Program (AFAP) and the Atlantic Canada Opportunities Agency (ACOA), also provide funds that are used to strengthen the fishery.



## A Stable Fishery Maintaining a Balance

### **SHELLFISH: Key to diversity**

Shellfish is Nova Scotia's most important species group in terms of landed value, accounting for more than half the total revenue of the province's fishery.

### **Lobster fishery**

Lobster, the highest-earning single species in Nova Scotia, has been under some form of management since the 1880s. A sharp drop in the stock in the 1960s and 1970s triggered some new measures: trap limits, limited entry licensing, removal of excess licences, and more recently measures like escape mechanisms in traps to let undersized lobsters go.

These, along with stricter enforcement and a greater sensitivity to the need for conservation by fishermen, has helped to stabilize this fishery.

In fact, in many areas, the lobster resource has risen to an abundance unseen in decades. Although environmental factors may be the main reason, the new measures and conservation attitudes have prevented this increase from being stopped in its tracks by overfishing.

### **Lobster Facts**

**Lobster in Nova Scotia (1992 preliminary figures)**

**Tonnes landed: 17,984 mt (Atlantic: 37,970 mt)**

**Landed value: \$159,436,000 ( Atlantic: \$290,344,000)**

**Export Value: \$182,744,299**



***Start of lobster season in southwest Nova Scotia .***

### **Scallop fishery**

Almost all scallops caught in Canadian waters are fished by vessels based in Nova Scotia.

The scallop fishery has also bounced back from low points in the mid-1980s brought about by overfishing. Tighter management has meant growth in the resource and better incomes for fishermen.

The settling of the Georges Bank boundary in 1984 excluded United States fishermen from Canadian scallop grounds and allowed exclusive Canadian management.

A management plan was drawn up for the Bay of Fundy area in an effort to sustain long term stability in the scallop fishery by levelling out the troughs and peaks in catches.

Meanwhile the introduction of Enterprise Allocations to the offshore scallop fleet, also in 1986, helped to stabilize that sector.

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### **Scallop Facts**

**Scallops in Nova Scotia (1992 preliminary figures)**

**Tonnes landed: 75,967 mt (Atlantic: 88,718 mt)**

**Landed value: \$83,503,000 (Atlantic: \$96,726,000)**

**Export value: \$100,480,230.**



*Shucking scallops at sea.*

### **Expanding the shellfish fisheries**

Shellfish hold a huge potential for new and expanded fisheries. Scientists feel that if all the available shellfish, including under-utilized species, were harvested, the total landed weight of shellfish in Nova Scotia could double.

### **Shrimp**

A shrimp fishery off the Atlantic coast of Cape Breton provides a good example of how a fishery can expand. The problem before was that shrimp nets caught too much groundfish and groundfish conservation usually closed the shrimp fishery prematurely. This gear problem was solved by a new separator trawl with a grate which keeps the groundfish out while allowing the shrimp to go into the cod-end. The fishery off Cape Breton was a respectable one in 1990 and 1991, and had a landed value of almost \$2 million in 1992 from landings of 1620 tonnes.



## Soft shell clams

Soft shell clams have been harvested from the beaches around Nova Scotia since time began. There is both a commercial and recreational soft shell clam industry, particularly in open areas of the coast near Economy, Five Islands and Digby on the Bay of Fundy and the Chezzetcook area on the eastern shore.

Commercial clam diggers are licensed and can harvest clams over 4.4 cm (1.75 inches). There is no limit to the amount they can harvest. Recreational clam diggers do not need a licence but are restricted to harvesting 300 clams a day.

One processing plant in Nova Scotia, with financial assistance under AFAP, has incorporated a depurating facility for clams harvested from closed areas.

Soft shell clams are marketed locally, and exported to New England. There may be further potential to expand into the United States in the future.

### ***Cutting down by-catches in the shrimp fishery***

***The development of the Nordmore grate has helped create a fully-fledged shrimp fishery off Nova Scotia. This is a slanted metal grate which allows shrimp through and into the cod-end, or end-bag, of the net but which deflects groundfish out again into open water. The result is a catch almost purely of shrimp.***

***The grate came into use in 1991 on a limited basis, but immediately the change was evident. The average total shrimp catch off Cape Breton had been less than 100 tonnes up to 1990. It jumped to 800 tonnes in 1991, 1620 tonnes in 1992 and still has room to expand towards the 3,000 tonne total allowable catch (TAC) available. DFO Scotia-Fundy Region issued 23 fishing licences for shrimp in 1992. Several vessels from the Gulf of St. Lawrence also fish for shrimp off Cape Breton.***

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## Opportunities from other species

Crabs are abundant off Nova Scotia, from the coastline to the deep sea. Markets exist for them, but catching them economically can be a problem. Snow crab support a major industry in the Gulf of St. Lawrence and the eastern shore of Nova Scotia. Other crab species with commercial potential in Nova Scotia include the long-legged red crab found mostly in deep water and the stubby-clawed Jonah crab found from shallow to deep water.

Pilot projects were tried in the 1970s and 1980s for these species, but failed mostly because of the cost of fishing. Commercial fisheries could be successful if fishermen find ways to fish them economically or if high value markets can be found. Further pilot studies are under way.

Quahogs are oval molluscs that grow to be five inches long. DFO researchers have found large inshore stocks off Shelburne County, where there are thousands of tonnes available for harvesting. Abundant stocks have been found offshore on Banquereau Bank. A pilot scale fishery is under way and is expected to be the beginning of a larger inshore fishery.

## A recent addition

Stimpson's surf clams have, in a very short time, become an established fishery. They were a barely known mollusc with no market in the early 1980s. DFO researchers discovered major stocks on Banquereau and Middle Banks between 1980 and 1983. The tongue and the edge of the meat are reddish. That fact captivated the interest of Japanese buyers in the late 1980s, and primarily because of that interest, a fishery developed which employs some 200 people on Cape Breton Island. Surf clams are fished by large, deep-sea clam boats. There is also a by-catch of quahogs and propeller clams.

An exploratory fishing cruise in 1991 discovered even larger concentrations of surf clams on other parts of Banquereau Bank. In recent years this fishery has expanded to the eastern Grand Banks where a large supply was found in the late 1980s.

## Specialty markets

Sea urchins exist in abundance in Nova Scotian waters. The roe of the spiny sea urchins is sold in Japan. There has been an

### ***Stimpson's Surf Clam***

*Stimpson's surf clams are grey-white molluscs, which grow up to five inches long at maturity. They were largely unknown in the mid-1980s except to DFO researchers who had found them in huge quantities on the banks off Cape Breton and on the Grand Banks of Newfoundland.*

*Fishermen continue to explore markets for these clams. There is a important market in Japan. Because of the reddish tint on the neck of the clam, they are popular for the sushimi (raw fish) market.*

experimental fishery for these creatures which are generally harvested by scuba divers from fishing boats.

Sea cucumbers are, as their name suggests, a cucumber-shaped animal up to 50 cm (20 inches) long that crawls or burrows on the sea bottom. Its flesh is dried and used in specialty foods. A modest experimental fishery and processing operation has been carried out off western Nova Scotia, funded under AFAP.

### **AQUACULTURE: Room for expansion**

Blue mussels, Atlantic salmon, rainbow trout, Arctic char, Irish moss, oysters (both the European and native varieties), and scallops (both the small bay scallops and the deep sea variety) are grown in Nova Scotia. Other species now in the research and development stage include striped bass, halibut, flounder, quahogs, eels and even an exotic species, the Chinese sand shrimp, which may be grown in shore tanks.

The total industry is a modest one which brought in some \$7 million in 1992, but it could grow to many times that level.

Nova Scotia's coastline of protected bays and harbours offers a large potential for expansion. The number of applications to farm new species indicates that this challenge is being taken up by industry.



Meanwhile, the process for new applicants has been simplified by a "one-stop shopping" process in which the Nova Scotia Department of Fisheries guides the application through the various federal and provincial departments for review and comment.

A study of potential sites is being carried out under the COOPERATION agreement as part of an aquaculture development plan.

#### **Aquaculture Facts**

**Total aquaculture in Nova Scotia (1992 estimates)**

**Total farmed: Finfish 830 mt.**

**Shellfish 474 mt.**

**Total value: Finfish \$6,490,600**

**Shellfish \$ 585,000**

**Export value: Not available.**

#### **Recreational Fishery**

*The recreational fishery in Nova Scotia is being built up with the support of the provincial and federal government departments. Fishing for pleasure spans marine and inland waters and currently brings over \$68 million each year into the provincial economy.*

*A multi-year Strategic Development Plan is being shaped for this sector of the fisheries through the Canada/Nova Scotia Cooperation agreement on Recreational Fisheries. When completed, it will address many areas to help the recreational fishery sector become self-sustaining: stock enhancement, restoration of habitat, protection of stock, clarification of government division of responsibilities and public involvement in management of this sector.*



***Atlantic salmon circle in their pen.***

## **GROUNDFISH: Striving for sustainability**

In the public's mind, the "fishery" usually means the groundfish fishery and the processing jobs that depend upon it. Although shellfish produce a higher landed value, groundfish are the most important species in terms of onshore employment, number of fishermen and landed weight, and are the basis of a year-round fishery in Nova Scotia. Of the major commercial fisheries the groundfish fishery has been the most challenging to stabilize.

A serious problem at the beginning of the 1990s was the downturn in many groundfish stocks. However, the main thrust of fishery policy is now focused on rebuilding these stocks. Recent conservation-oriented initiatives on the fishing effort give hope that they will all be rebuilt. Along with declines in groundfish stocks off its own shores, the province's fishing industry has been affected by declining stocks off Newfoundland on which some fish processing jobs in Nova Scotia depend.

After Canada obtained control of offshore waters with the declaration of the 200-mile limit in 1977, the fishing effort was gradually brought under stricter control through quotas and licences. There was a swift increase in volume of catches during the next five years as Canadian vessels replaced foreign ones.

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Groundfish catches reached a peak in 1982, then began to decline. Combined with declining quotas for Nova Scotia-based trawlers fishing off Newfoundland, this caused painful closures and re-adjustments in fish plants. New conservation measures followed, including more conservation-oriented gear, and closed spawning areas and juvenile nurseries for haddock.

### **Tighter controls**

By the end of the decade it became clear that previous conservation measures were still not enough. Although some groundfish stocks were stabilizing, overfishing, and misreporting remained problems. Poorly understood environmental factors were suspected as a further cause of pressure on the stocks.

Cumulative quota cuts starting in 1989, including the complete closure of the Northern Cod Fishery in Newfoundland in 1992, were accompanied by a new effort to conserve, mostly financed by the Atlantic Fisheries Adjustment Program (AFAP), a 5-year, \$584 million program to put the groundfish fishery back on its feet.

### **Moving towards recovery**

The new measures included the Dockside Monitoring Program that came into effect in Scotia-Fundy January 1, 1991, increased

***FPV Cygnus steams out of  
Halifax Harbour on fisheries  
patrol.***







***A catch of dogfish, cod, haddock and redfish.***

aircraft surveillance, stiffer penalties for offences under the Fisheries Act (these last two applying to all fisheries, not just groundfish), and the promotion of conservation in general. Besides strict conservation quotas, a host of measures have come into play to protect small fish and curb illegal fishing.

### **Looking to the future**

The move to protect juvenile fish is key to sustaining future fish stocks, and further measures to this end are being studied and pursued. They include the use of separator trawls and selectivity grates that let small fish escape, and increasing mesh sizes for trawls and gillnets and hook size for longline fishing. Further enforcement and protection measures are also being designed, such as a ban on nighttime fishing where practical, restrictions on the number of vessels fishing at one time.

Harvesting non-traditional species of groundfish is being explored, such as lumpfish, which is the focus of an experimental fishery off Cape Breton. The roe of the lumpfish is a popular delicacy.

Fisheries authorities and the Nova Scotia industry are determined to rebuild groundfish revenues to the record levels of the 1980s. The groundfish industry should emerge stronger than ever.

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## Opportunities with silver hake

In 1992, a silver hake fishery started up in a serious way for Canadian vessels off Nova Scotia, with several companies involved. Silver hake constitute the most abundant groundfish stock off Nova Scotia, but remain only partially utilized by Canadians. This is because silver hake are smaller, spoil more quickly if not handled properly and are found in deeper water than traditional groundfish.

However, experiments to catch and process this fish have borne fruit. Projects have been funded by the Canada/Nova Scotia COOPERATION Agreement, the Atlantic Fisheries Adjustment Program (AFAP), and the Atlantic Canada Opportunity Agency (ACOA).

Although most silver hake are found on the continental slope, Canadian fishermen aided by funding from the federal Department of Fisheries and Oceans (DFO), have learned to fish them in the deep but relatively close basins off the South Shore of Nova Scotia. A separator grate prevents by-catches of other species.

Meanwhile, experiments at the Technical University of Nova Scotia have established that silver hake would make excellent surimi (the fish paste now generally made with Alaska pollock). Filleting and deboning machines have been successfully adapted to the small size of the fish.

### Groundfish Facts

**Groundfish in Nova Scotia (1992 preliminary figures)**

**Tonnes landed: 240,224 mt (Atlantic: 425,928 mt)**

**Landed value: \$191,383,000 (Atlantic: \$290,770,000)**

**Export value: \$318,065,298**

## PELAGICS: Growing prosperity

Pelagic fish are caught near the surface of the sea. In Nova Scotia the most important of these in commercial terms are herring and bluefin tuna. Herring and mackerel are the



***A school of mackerel.***

important “small pelagics” while bluefin tuna and swordfish are the important “large pelagics.”

The herring stocks provide a classic case of overfishing and collapse, followed by rebuilding. The overfishing happened in the late 1960s and early 1970s and was followed by conflict between purse seiners and gillnetters for what remained of the stock.

The 1970s saw a flurry of new initiatives to stop the collapse: limited entry licensing, restricting vessels to particular zones, the formation of a new marketing cooperative, the diversion of herring into food rather than fishmeal, individual boat quotas and over-the-side herring sales to foreign buyers. Then in 1983 a ten-year plan separated the Gulf of St. Lawrence and Scotia-Fundy fleets and restricted them to their home territories, made individual boat quotas saleable and placed a ten-year moratorium on new licences.

In 1989 new regulations required mandatory weighing and reporting of catches, upgraded standards to ensure freshness, and created a closed area to protect spawning on Trinity Ledge in the Bay of Fundy.

The result is that herring stocks are in good shape. Quotas and landings increased steadily as these measures took effect. The exception is the Georges Bank stock which was nearly destroyed in the 1960s and 1970s. It is showing signs of recovery.



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### **Herring Facts**

**Herring in Nova Scotia (1992 preliminary figures)**

**Tonnes landed: 97,564 mt (Atlantic: 212,819 mt)**

**Value: \$11,716,000 (Atlantic: \$27,164,000)**

**Export Value: \$43,283,158 (includes valuable roe figures)**

### **New pelagics**

Mackerel constitutes a large stock but remains under-developed as a fishery. The fish is not highly prized by Canadian consumers outside the Atlantic provinces, and developing wider markets remains the largest obstacle.

New tuna and shark fisheries are possible.

There are tuna other than the well-known bluefin. Bigeye, albacore and yellowfin have ready markets and are available to be developed into commercial fisheries. DFO is encouraging fisheries for these species. The drawback is that catching them without excessive by-catch of bluefin requires a specialized expertise that is costly to develop. (AFAP has funded projects to develop this expertise.) Other "large pelagics" include a couple of large shark species, porbeagle and mako, that have markets and are seen as the basis of possible future fisheries.

### **Tuna Facts**

**Tuna in Nova Scotia (1992 preliminary figures)**

**Total tonnes of tuna landed: 439 mt (Atlantic: 495 mt)**

**Total Value: \$ 6,833,000 (Atlantic: \$ 7,468,000)**

**Bluefin landed: 344 mt**

**Bluefin value: \$6,000,000**

**Total Export Value: \$ 6,685,403**

## Dogfish

The small shark known as dogfish is also the basis of a small fishery. These fish swarm around some inshore areas of Nova Scotia in summer and their white flesh is desired in certain markets. They have a tough skin that makes them hard to process, however, and they spoil relatively quickly if not handled properly. With start-up assistance from the COOPERATION Agreement and AFAP, however, entrepreneurs are overcoming these problems. A small dogfish fishery exists in western Nova Scotia with potential for growth.

### Shark and Dogfish Facts

Shark and dogfish in Nova Scotia (1992 preliminary figures)

Tonnes landed: 1,763 mt (Atlantic: 1,768 mt)

Value: \$ 2,323,000 (Atlantic: \$ 2,329,000)

Export Value: \$ 776,796

### Blue Shark

*Blue shark is an example of a species for which there is an experimental fishery. Blue shark may be able to support a larger fishery if markets for it can be widened and stocks support increases in harvesting. This large pelagic fish, 2 to 3 metres (6 to 9 feet) long and weighing 29 - 54 kilograms (64 to 120 lbs) at maturity, has fine light meat with a mild flavour.*

*Marketing trials with salt and fresh product, both in Nova Scotia and on international markets, have had encouraging results.*

*Meanwhile, a management plan is under consideration, which would involve a scientific assessment of the size of the stock, with quotas being established for conservation purposes. Other sharks, mako and porbeagle, are also being fished in tandem with the blue shark. These two are popular with consumers because of their white meat and firm texture.*

## Diversity: New Products, New Technologies

### Broadening Our Base in the Fisheries

The Canada/Nova Scotia COOPERATION Agreement helps to finance projects in various aspects of the fishery, in order to diversify and to strengthen its existing base.

Some projects are aimed at reinforcing the resource base such as the search for aquaculture sites, or a survey of the sport fishery aimed at enhancing the recreational fishing stock.

Another component is aimed at under-utilized species, and has funded such projects as further exploration for offshore clam beds, dogfish processing, drying and marketing tests for various under-utilized species, and research and marketing plans for sea urchins. There is also the promotion of under-utilized species through research for new products. This is research done at the Technical University of Nova Scotia where extensive tests to determine whether surimi can be made from

***Measuring the size of the carapace ensures that small lobsters are returned to the sea.***





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silver hake have been done, as well as tests on products from other species.

The agreement also aims at improving technology and stimulating innovations. Projects have ranged from experiments with trawl nets using separator grates for fishing silver hake, to training for weighmasters to operate the catch monitoring system for inshore groundfish vessels, and cruises to test the effectiveness of different net designs in letting small fish escape. Other projects have studied holding and off-loading technologies, and the creation of a database for ice-making, ice storage and ice requirements.

Initiatives to enhance the Native fisheries are also part of the COOPERATION Agreement, as is funding for the Ocean Production Enhancement Network (OPEN) and Marine Gene Probe Laboratory at Dalhousie University.

### **Native Fishery**

The DFO's policy concerning the Native Fishery aims to enable Native people to manage and develop their own fisheries. DFO policy aims to explore economic opportunities for Natives in the fishery. Just as important is its aim to enhance the recreational fishery through conservation and protection for the benefit of Native and non-Native groups.

Native Guardians have been trained to work side by side with DFO fish habitat managers and scientists to collect harvest data, conduct enforcement patrols in Band areas and work with band councils and DFO to assist in managing the Native Fishery.

### **Ocean Production Enhancement Network (OPEN)**

The Ocean Production Enhancement Network (OPEN) links scientists from many different fields with members of the fishing industry and the DFO to provide sound commercial planning for the fishing industry. OPEN is coordinated from Dalhousie University in Halifax, which is one of 15 Centres of Excellence located across Canada.

Research being carried out through OPEN will increase our knowledge of the dynamics of the ocean and fish stocks and provide valuable information for sustainable management of the resource. Together, eight universities in Atlantic Canada and

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Quebec are breaking new ground in our understanding of cod and scallops. This will have direct application for the wild harvest fishery and aquaculture.

### **Atlantic Fisheries Adjustment Program (AFAP)**

Hundreds of new projects have been initiated under AFAP, some directly linked with the fisheries and others which have encouraged alternate community-based economic opportunities. A number of major programs have been launched with AFAP money to halt overfishing and bring back the stocks and to provide additional training for people in the fishing industry.

AFAP was established in 1990 in response to declines in the groundfish fishery. The bulk of the funds consists of \$584 million which is to be spent over five years in Atlantic Canada.















